Fault Management Simulation and Visualization Tool, Phase I

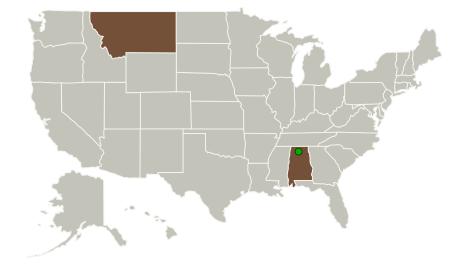


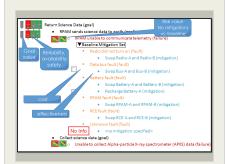
Completed Technology Project (2016 - 2016)

Project Introduction

S&K proposes to design a tool, Fault Management (FM) Viewer, with multiple visualization models (viewers) to assist with planning FM development by providing new ways of visualizing FM concepts and data. State of the art tools to assist FM development include fault trees, success trees, and general Model Based System Engineering (MBSE) tools using SysML. S&K will structure the FM viewer to align with NASA's FM Handbook, a design reference mission from S&K Team experiences, and S&K Team experiences with past FM development support projects. The benefits of developing this approach and tool include improved FM quality, efficiency in developing FM, and a more cost-effective expenditure of FM resources on failures that are most important to control. The S&K Team will deliver a Concept of Operations for this FM Viewer to support decisions about FM designs, displays designed to support the FM design decisions enabling comparison views of risk postures with and without implementation of the proposed FM measures, options for measuring FM effectiveness and for semi-autonomous estimation of effectiveness of alternative FM designs, and XML schema defining data models for the FM Viewer that can support the exchange of date with other tools used by system developers. The S&K Team will first identify a design reference mission, plan a data exchange between related tools, design an XML schema, design information displays, explore options for measurements and automated FM estimates, develop a concept of operations, demonstrate feasibility with a partial prototype, and prepare for final report delivering the results of Phase I that also includes our proposal for Phase II.

Primary U.S. Work Locations and Key Partners





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Small Business Innovation Research/Small Business Tech Transfer

Fault Management Simulation and Visualization Tool, Phase I



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Organizations Performing Work	Role	Туре	Location
S&K Global Solutions, LLC	Lead Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Polson, Montana
Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

Primary U.S. Work Locations	
Alabama	Montana

Project Transitions

June 2016: Project Start



Closeout Documentation:

• Final Summary Chart(https://techport.nasa.gov/file/140427)

Images



Briefing Chart Image

Fault Management Simulation and Visualization Tool, Phase I (https://techport.nasa.gov/imag e/127845)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

S&K Global Solutions, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

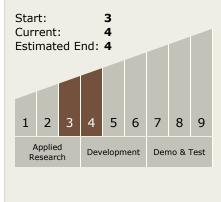
Program Manager:

Carlos Torrez

Principal Investigator:

Carroll Thronesbery

Technology Maturity (TRL)





Small Business Innovation Research/Small Business Tech Transfer

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Final Summary Chart Image

Fault Management Simulation and Visualization Tool, Phase I Project Image (https://techport.nasa.gov/image/126394)

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
 - □ TX11.1 Software
 Development,
 Engineering, and Integrity
 □ TX11.1.7 Frameworks,
 Languages, Tools, and
 Standards

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System

